tank shall be grouped in one location, either at the top of the tank or at one end of the tank.

(d) The following openings may be installed at locations other than on the top or end of the tank:

(1) The openings for liquid level gauging devices, pressure gauges, or for safety devices, may be installed separately at the other location or in the side of the shell;

(2) One plugged opening of 2-inch National Pipe Thread or less provided for maintenance purposes may be located elsewhere;

(3) An opening of 3-inch National Pipe Size or less may be provided at another location, when necessary, to facilitate installation of condensing coils; or

(4) Filling and discharge connections may be installed below the normal liquid level of the tank if the tank design conforms to the following requirements:

(i) The tank must be permanently mounted in a full framework for containerized transport. For each tank design, a prototype tank, must fulfill the requirements of parts 450 through 453 of this title for compliance with the requirements of Annex II of the International Convention for Safe Containers.

(ii) Each filling and discharge connection must be equipped with an internal self-closing stop-valve capable of closing within 30 seconds of actuation. Each internal self-closing stop-valve must be protected by a shear section or sacrificial device located outboard of the valve. The shear section or sacrificial device must break at no more than 70 percent of the load that would cause failure of the internal self-closing stop-valve.

(iii) Each internal self-closing stop-valve must be provided with remote means of automatic closure, both thermal and mechanical. The thermal means of automatic closure must actuate at a temperature of not over 250 °F.

(e) Each uninsulated tank used for the transportation of compressed gas, as defined in §173.300 of this subchapter, must have an exterior surface finish that is significantly reflective, such as a light reflecting color if painted, or a bright reflective metal or other material if unpainted.

[Amdt. 178–117, 61 FR 50627, Sept. 26, 1996]

§ 178.245–2 Material.

(a) All material used for the construction of the tank and appurtenances shall be suitable for use with the commodity to be transported therein.

(b) A material of thickness less than 3⁄16 inch shall not be used for the shells and heads.

§ 178.245–3 Design pressure.

(a) The design pressure of a tank authorized under this specification shall be not less than the vapor pressure of the commodity contained therein at 115 °F., or as prescribed for a particular commodity by part 173 of this chapter, except that in no case shall the design pressure of any container be less than 100 psig or more than 500 psig. When corrosion factor is prescribed by these regulations, the wall thickness of the tank calculated in accordance with the ''Code'' (see §178.245–1(a)) shall be increased by 20 percent or 0.10 inch, whichever is less.

NOTE 1: The term *design pressure* as used in this specification is identical to the term *MAWP* as used in the ''Code'' (see §178.245–1(a)).

(b) [Reserved]

[29 FR 18972, Dec. 29, 1964; Redesignated at 32 FR 5606, Apr. 5, 1967, as amended by 66 FR 45387, Aug. 28, 2001]

§ 178.245–4 Tank mountings.

(a) Tanks shall be designed and fabricated with mountings to provide a secure base in transit. ''Skids'' or similar devices shall be deemed to comply with this requirement.

(b) All tank mountings such as skids, fastenings, brackets, cradles, lifting lugs, etc., intended to carry loadings shall be permanently secured to tanks in accordance with the requirements of the Code under which the tanks were fabricated and shall be designed to withstand static loadings in any direction equal to twice the weight of the tank and attachments when filled with the lading using a safety factor of not less than four, based on the ultimate strength of the material to be used.

The specific gravity used in determining the static loadings shall be shown on the marking required by §178.245–6(a) and on the report required by §178.245–7(a).

(c) Lifting lugs or hold-down lugs may be added to either the tank or tank mountings. If lifting lugs and hold-down lugs are added directly to the tank, they shall be secured to doubling plates welded to the tank and located at points of support, except that lifting lugs or hold-down lugs with integral bases serving as doubling plates may be welded directly to the tank. Each lifting lug and hold-down lug shall be designed to withstand static loadings in any direction equal to twice the weight of the tank and attachments when filled with the lading using a safety factor of not less than four, based on the ultimate strength of the material to be used.

(d) All tank mountings shall be designed so as to prevent the concentration of excessive loads on the tank shell.

(e) A DOT 51 portable tank that meets the definition of ''container'' in §450.3(a)(2) of this title must meet the requirements of parts 450 through 453 of this title, in addition to the requirements of this subchapter.

[29 FR 18972, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, as amended by Amdt. 178–117, 61 FR 50628, Sept. 26, 1996; 64 FR 51919, Sept. 27, 1999]

§178.245–5 Protection of valves and accessories.

(a) All valves, fittings, accessories, safety devices, gaging devices, and the like shall be adequately protected against mechanical damage.

(b) The protective device or housing shall conform to the requirements under which the tanks are fabricated with respect to design and construction, and shall be designed to withstand static loadings in any direction equal to twice the weight of the tank and attachments when filled with the lading using a safety factor of not less than four, based on the ultimate strength of the material to be used.

(c) Requirements concerning types of valves, retesting, and qualification of portable tanks contained in §§173.32 and 173.315 of this chapter must be observed.

[29 FR 18972, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, as amended by Amdt. 178–104, 59 FR 49135, Sept. 26, 1994]

§178.245–6 Name plate.

(a) In addition to the markings required by the Code (see §178.245–1(a)) under which tanks were constructed, they shall have permanently affixed, in close proximity to the ASME ''U'' stamp certification, a metal plate. This plate shall be permanently affixed by means of soldering, brazing, or welding around its complete perimeter. Neither the plate itself nor the means of attachment to the tank shall be subject to destructive attack by the contents of tank. Upon such plate shall be plainly marked by stamping, embossing, or other means of forming letters into or onto the metal plate itself the following information in characters at least ⅛-inch high:

Manufacturer's name _____
Serial No. ——— Owner's serial No. _____
D.O.T. Specification No. _____
Water capacity (pounds) _____
Tare weight (pounds) _____
Design pressure (psig) _____
Design specific gravity _____
Original test date _____
Tank retested at ——— (psig) on: _____

(b) All tank outlets and inlets, except safety relief valves, shall be marked to designate whether they communicate with vapor or liquid when the tank is filled to the maximum permitted filling density.

[29 FR 18972, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 178–67, 46 FR 49906, Oct. 8, 1981; Amdt. 178–117, 61 FR 50628, Sept. 26, 1996]

§178.245–7 Report.

(a) A copy of the manufacturer's data report required by the Code (See §178.245–1(a)) under which the tank is fabricated shall be furnished to the owner for each new tank.

(b) [Reserved]

[Amdt. 178–76, 48 FR 28102, June 20, 1983]